Paper No. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte RUBY B. LEE

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Appeal No. 1999-2702
Application No. 08/509,867

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ON BRIEF

_____

Before JERRY SMITH, DIXON, and BARRY, **Administrative Patent Judges**.

DIXON, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1-8, which are all of the claims pending in this application.

We REVERSE.

BACKGROUND

The appellant's invention relates to a processor for performing subword permutations and combinations. An understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below.

> 1. An apparatus for generating permutations of an input data word, said apparatus comprising:
>
> an input register for holding said input data word;
>
> means for partitioning said input register into a plurality of sub-words, each said sub-word being characterized by a location in said input register and a length greater than one bit;
>
> an output register for holding said permutations of said input data word, said output register being different from said input register; and
>
> means, responsive to an instruction, for directing at least one of said sub-words to a location in said output register that differs from said location occupied by said sub-word in said input register, said location being specified by said instruction, the ordering of said sub-words in said output register differing from the order obtainable by a single shift or rotation of the contents of said input register or by a rotation of the contents of said input register with one path from said input register to said output register being disabled, the ordering of said sub-words in said output register being independent of the contents of said sub-words.

The prior art reference of record relied upon by the examiner in rejecting the appealed claims is:

Phillips et al. (Phillips)	5,471,628	Nov. 28, 1995

Claims 1, 2, 3, and 5 stand rejected under 35 U.S.C. § 102 as being anticipated by Phillips. Claims 4, 6, 7, and 8 stand rejected under 35 U.S.C. § 103 as being unpatentable over Phillips.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejections, we make reference to the examiner's answer (Paper No. 12, mailed Jan. 19, 1999) for the examiner's reasoning in support of the rejections, and to the appellant's brief (Paper No. 11, filed Dec. 21, 1998) and reply brief (Paper No. 13, filed Mar. 15, 1999) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art reference, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

35 U.S.C. § 102

"Anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed

invention." **RCA Corp. v. Applied Digital Data Systems. Inc.**, 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984).

It is well settled that the burden of establishing a ***prima facie*** case of anticipation resides with the Patent and Trademark Office (PTO). **See In re Piasecki**, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984). After the PTO establishes a ***prima facie*** case of anticipation based on inherency, the burden shifts to the appellant to prove that the subject matter shown to be in the prior art does not possess the characteristics of the claimed invention. **See In re Thorpe**, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); **In re King**, 801 F.2d 1324, 1327, 231 USPQ 136, 138 (Fed. Cir. 1986). Hence, the appellants' burden before the PTO is to prove that the applied prior art reference does not perform the functions defined in the claims. Compare **In re Best**, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977); **In re Ludtke**, 441 F.2d 660, 664, 169 USPQ 563, 566-67 (CCPA 1971). Here, we find that appellants have met this burden, and we will not sustain the rejection of claim 1.

The examiner maintains that the system of Phillips can generate "all" permutations. The examiner at page 4 of the answer cites to col. 9, which discusses permutations generally. The examiner further maintains that Phillips' disclosure contains enough information to enable one of ordinary skill in the art to implement a circuit which could produce the full set of permutations. While enablement is not at issue in a rejection under

35 U.S.C. § 102, we interpret the examiner's position to be that Phillips has the basic teachings upon which a skilled artisan would have been able to practice or suggest the claimed invention. This is not the standard upon which to evaluate a rejection for anticipation. Appellant argues that Phillips does not disclose a system which can generate “all” permutations because they are not required and Phillips teaches minimizing the hardware to only those needed to support the required mask instructions. (See reply brief at page 2 and Phillips at columns 16-17). We agree with appellant that the level of disclosure in Phillips does not teach the invention as required under 35 U.S.C. § 102 since Phillips does not clearly teach other than the cyclic permutation. While the specification and claims of Phillips appear to mention “any permutation” (Phillips at columns 24) and non-cyclic permutations with respect to the “gather” and "spread" functions of the IBM 370 mainframe computer (Phillips at columns 25), Phillips does not in itself or by inherency teach the invention as recited in claim 1 with respect to the following limitations:

> means, responsive to an instruction, for directing at least one of said sub-words to a location in said output register that differs from said location occupied by said sub-word in said input register, said location being specified by said instruction, the ordering of said sub-words in said output register differing from the order obtainable by a single shift or rotation of the contents of said input register or by a rotation of the contents of said input register with one path from said input register to said output register being disabled, the ordering of said sub-words in said output register being independent of the contents of said sub-words.

The examiner does a thorough identification of all terms and teachings within the four corners of Phillips which are applied against the claimed invention. Here, the examiner relies on the background of the invention section, the preferred embodiment section and the claimed invention of Phillips, but in our view, this rises to more than a single teaching within Phillips, and the examiner has not provided any analysis of why one skilled in the art would have generalized the specific cyclic permutation taught in the preferred embodiment to achieve the permutations recited in the instant claim 1. Furthermore, the disclosure of Phillips requires more than a basic familiarity of the IBM 370 mainframe computer and its functionality with respect to the "gather" and "spread" functions. In our view, this knowledge or familiarity would have been more than could be considered as inherent in the teachings of Phillips. Therefore, we find that the teachings of Phillips alone is not a sufficient teaching to rise to the level of an anticipatory reference as the examiner maintains.

Appellant argues that the issue is more than just whether Phillips discloses that any permutation can be generated, but whether Phillips teaches an apparatus for generating a general permutation in a single instruction as required by claim 1. (See reply brief at page 3). We do not fully agree with appellant's argument whereas the language of claim 1 does not require a "single instruction." The language of claim 1 merely recites that "an instruction." Therefore, this argument is not persuasive.

Appellant argues that Phillips does not provide any teaching as to how one would provide a single instruction that specifies the N^2 control lines. (See reply brief at page 3). We disagree with appellant's argument because we find no support in the language of claim 1 concerning the number of control lines.

Appellant argues that the examiner has not identified any support in Phillips for the examiner's example in the answer at page 9 of the permutation of (A_1, A_2, A_3, A_4) to (A_2, A_1, A_4, A_3). We agree with appellant that the examiner has not identified how the above permutation would be carried out by Phillips. Appellant further argues that Phillips does not identify what the "spread" function actually performs. (See reply brief at pages 3-4). We agree with appellant as we discussed above. While Phillips mentions the "gather" function throughout and in an instruction at column 12, and mentions the "spread" function throughout the disclosure there is no disclosure or definition of an instruction or function for these functions. In view of the above, we will not sustain the examiner's rejection under 35 U.S.C. § 102 of claim 1 and its dependent claims 2, 3, and 5.

35 U.S.C. § 103

With respect to independent claim 8, the examiner merely identifies that Phillips does not disclose the use of multiplexers and that it would have been obvious to one of ordinary skill in the art at the time of the invention to use multiplexers in place of the switches. (See answer at pages 7-8). We agree with the examiner that Phillips suggests

the use of multiplexers of discrete switches in column 18. The examiner further maintains that Phillips discloses independent control of the control lines at column 9. We disagree with appellant. At column 9, Phillips merely sets forth an introduction to permutations in general. At column 18, lines 28-40, Phillips discloses that certain paths must be independently controlled, but not all paths. In our view, this is not a teaching of independent control of all paths, but only those for the specific functions with respect to the IBM 370. Nor do we find that Phillips discloses that the control signals to at least one multiplexer in said stage that differ from the control signals provided to another multiplexer in the same stage, as recited in independent claim 8. Appellant argues that claim 8 requires that the control lines of one of the multiplexer stages in the conventional shifter from a plurality of multiplexer stages be independently controlled to provide a permutation function. (See brief at page 8). We agree with appellant that the examiner has not addressed the use of a conventional shifter in a system being controlled to generate permutations. In response to appellant's argument, the examiner cites to columns 3, 6, and 18 of Phillips, but we find no teaching of differing the control of the shifter to perform permutations. Therefore, we will not sustain the examiner's rejection of claim 8 under 35 U.S.C. § 103.

With respect to dependent claims 4, 6 and 7, the examiner's rejection under

35 U.S.C. § 103 does not address the above noted deficiencies with respect to the rejection under 35 U.S.C. § 102. Therefore, we will not sustain the rejection of claims 4, 6 and 7 under 35 U.S.C. § 103.

CONCLUSION

To summarize, the decision of the examiner to reject claims 1-8 under 35 U.S.C. § 103 is reversed.

REVERSED

JERRY SMITH Administrative Patent Judge	)
JOSEPH L. DIXON Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
LANCE LEONARD BARRY Administrative Patent Judge	)

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APPEAL NO. 1999-2702 - JUDGE DIXON
APPLICATION NO. 08/509,867

APJ DIXON

APJ BARRY

APJ JERRY SMITH

DECISION: **REVERSED**

Prepared By: ????

DRAFT TYPED: 14 Jun 02

FINAL TYPED: